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(56) Documents cited
GB A 2136343 GB 1441640 GB 0990664
GB A 2100654 GB 1280579 GB 0653640

(58) Field of search
B4K
Selected US specifications from IPC sub-class B25G

(54) Hollow handle and shaft assembly

(57) A hollow handle comprises two parts 50, 51 having interengaging formations 55, 54 which are prevented from disengaging by a ring 58 surrounding the formations.

A hollow shank 25 which connects the handle to a lifting scoop 11, 12 is provided at each of its upper and lower ends with a two part collar 26 having projections 48 for engagement in opposed apertures in the respective end of the shank, disengagement of the projections from the apertures being prevented by a ring 45 surrounding the collar and engaged with the collar by a snap action.

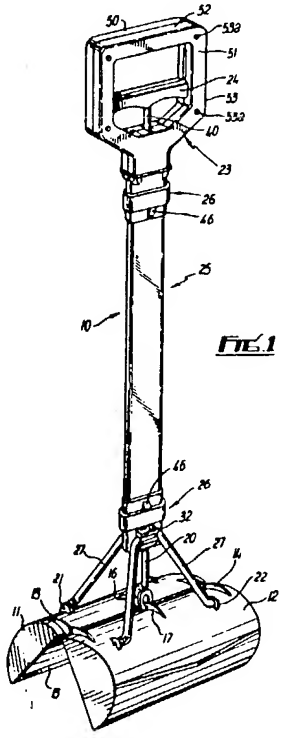

FIG.1

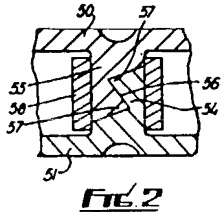

FIG.2

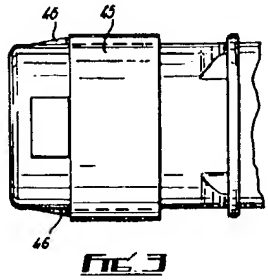

FIG.3

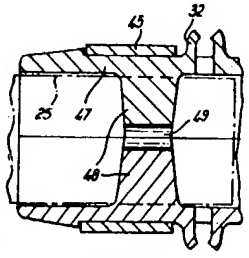

FIG.4

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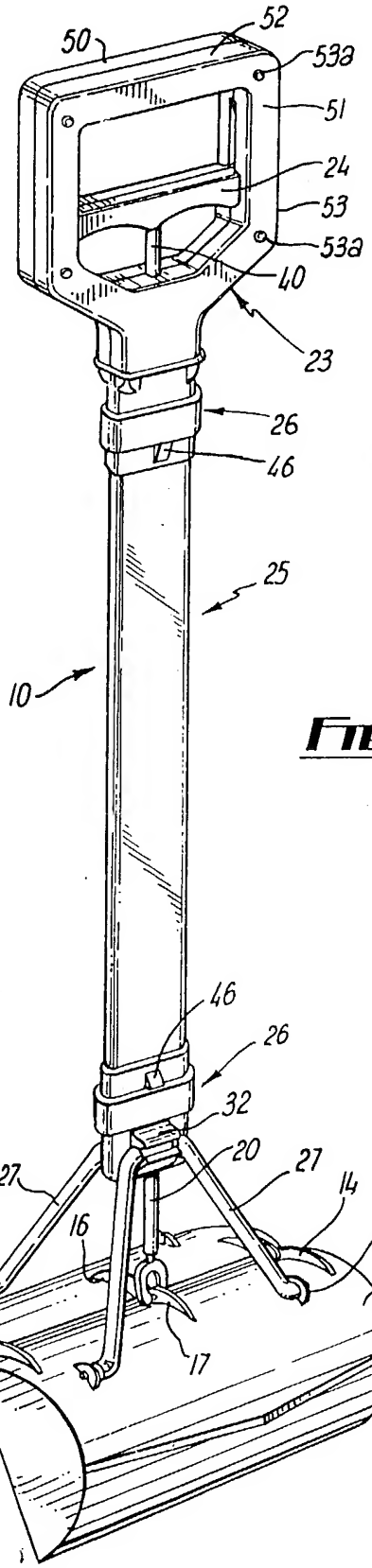

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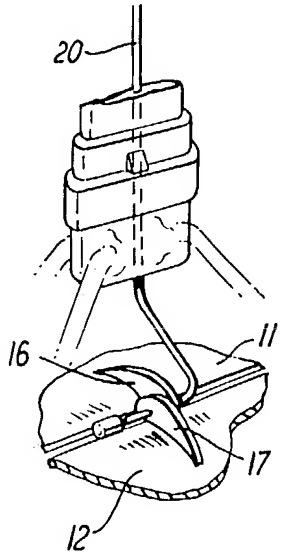

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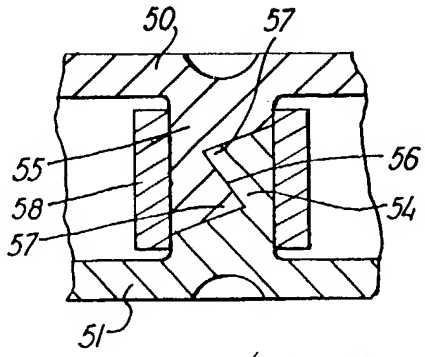

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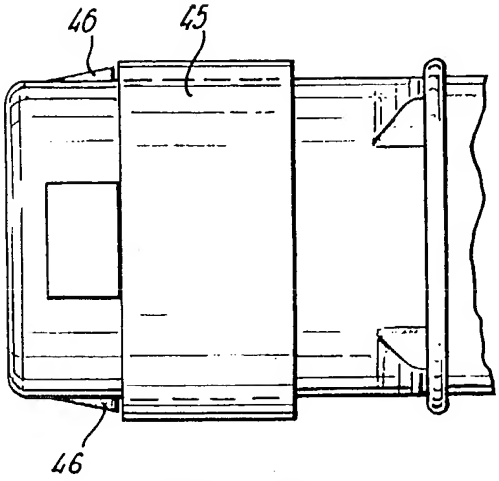

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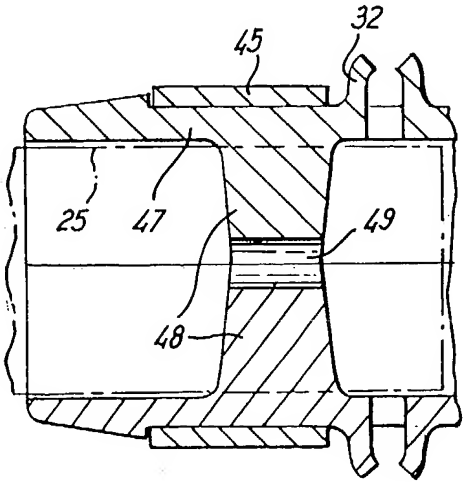

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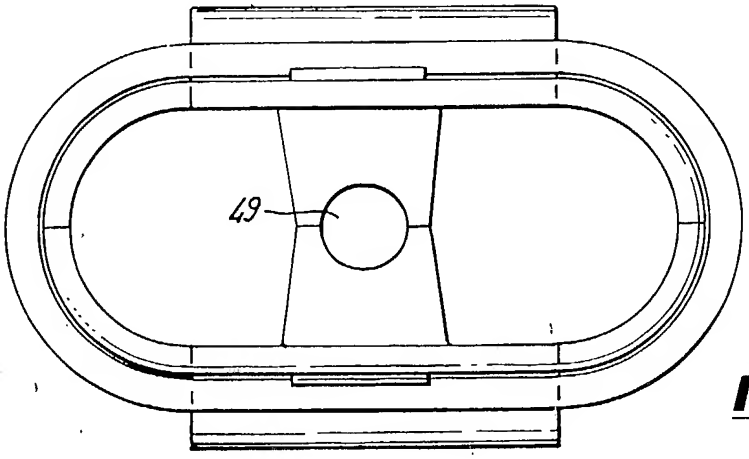

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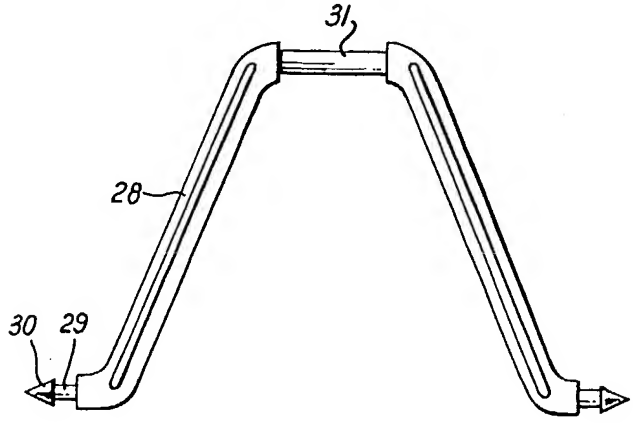

FIG. 6

FIG. 7

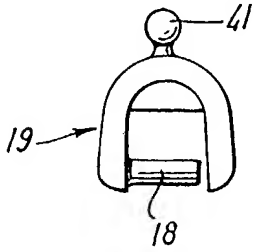

FIG. 8

FIG. 9

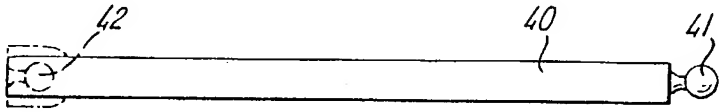

FIG. 10

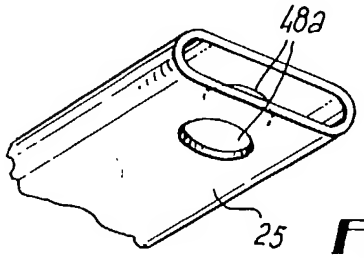

FIG. 11

separation of the parts.

As shown each projection has a zig-zag surface 56 so that when brought together by relative movement in a first direction portions 57 overlap and resist lateral separation of the parts. Other formations may be used to this end. A ring 58 surrounds the projections 54, 55 to resist relative movement between the side parts parallel to the shaft 25; although there is sufficient clearance for the parts 57 to engage the ring 58 prevents effective separation in any direction.

Fig. 12 shows a modification in which the rod 20 is a plain steel rod bent at its lower end to define a pivot for lugs 16, 17.

There may be two opposed members 46 or more than two, see Fig. 3.

The assembly may have more than two parts connected as described.

The lifting scoop device can be carried about already assembled or in parts.

To lift dog faeces from the ground the scoop parts 11, 12 are placed on either side of it and the handle 24 is lifted. This traps the faeces in the scoop parts.

For disposal of the scooped faeces, the handle 24 is lowered so that the parts 11, 12 open to discharge the faeces as desired.

The shank 25 could be made of varying lengths.

The device also has application to the lifting and disposal of other noxious substances such as articles contaminated with radio-activity or which could be infectious or touch hazardous or touch offensive and in which the locked conditions adds greatly to safety and in which the releasable condition allows ready disposal.

CLAIMS

1. A method of connecting two parts to form a hollow assembly comprising providing each part with a formation such that when the formations are urged together they interengage; and providing means around the formations for resisting relative movement between the formations after interengagement.

2. A method as claimed in Claim 1, in which the formations are urged together in a first direction and the means resists relative movement in a direction transverse to the first direction.

3. A hollow assembly comprising two parts, each part having a formation, said formations being interengaged, and a ring member around the cooperable parts resisting relative separating movement between the formations.

4. An assembly as claimed in Claim 3, in which one of said two parts has two pieces respectively with a projection received in a respective aperture in the other of said two parts.

5. An assembly as claimed in Claim 3 in which the formations are such that when mutually engaged separation of the formations in a first direction is resisted, said ring member resisting relative movement between the formations transverse to said first direction.

6. An assembly as claimed in Claim 5 in which the formations have zig-zag cooperable surfaces.

7. An assembly as claimed in Claim 3 or Claim 4, including means resisting movement of said ring member from movement resisting position.

8. An assembly substantially as hereinbefore described with reference to and as shown in Fig. 2, or Figs. 3 to 5 of the accompanying drawings.

9. A method of connecting two parts to form an assembly substantially as hereinbefore described.

10. A hollow assembly made by a method as claimed in Claim 1 or Claim 9.

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SPECIFICATION

Connection methods and assemblies

This invention relates to connection methods and assemblies.

According to one aspect of this invention a method of connecting two parts to form a hollow assembly comprises providing each part with a formation such that when the formations are urged together they interengage; and providing means around the formations for resisting relative movement between the formations after interengagement.

The formations may be urged together in a first direction and the means resist relative movement in a direction transverse to the first direction.

According to another aspect of the invention a hollow asssembly comprises two parts, each part having a formation, said formations being interengaged, and a ring member around the cooperable parts resisting relative separating movement between the formations.

One of said two parts may have two pieces respectively with a projection received in a respective aperture in the other of said two parts. The formations may be such that when mutually engaged separation of the formations in a first direction is resisted, said ring member resisting relative movement between the formations transverse to said first direction.

The formations may have zig-zag cooperable surfaces.

The invention provides a connection method and an assembly however defined.

The invention may be performed in various ways and two specific embodiments with possible modifications will now be described by way of example with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of a dog faeces lifting scoop;

Figure 2 is a cross section through part of a handle;

Figure 3 is a side view of a top collar;

Figure 4 is a part central section of a bottom collar;

Figure 5 is an end view of the bottom collar;

Figures 6 and 7 are side end views of a connector;

Figure 8 is a side view of a coupling part;

Figures 9 and 10 are end and side views of a stem element; and

Figure 11 is a perspective view of a shank end region.

In fig. 1 a device 10 comprises two locking, rigid, nominally hemi-cylindrical, scoop or container-forming parts 11, 12. These are preferably made of identical form so that they can be made in a single mould. The parts 11, 12 are hinged together along lengthwise edges at hinges 13, 14. The bottom edges of parts 11, 12 are of knife edge form as shown for example at 15. The parts 11, 12 also have lugs 16, 17 in which is located a bottom pin 18 of a coupling 19 attached to a lifting rod 20 thereby creating also a third hinge. Brackets 21, 22 are formed integral with each of the parts 11, 12.

The parts 11 to 22 (except 20) are disposable and are accordingly made of inexpensive material such as reconstituted plastics material. The end faces of the parts 11, 12 are inclined to give the parts a tapered form so that for transport and storage the parts can be nested to form a stack.

The remainder of the lifting scoop device comprises a hollow carrying handle 23; an operating handle 24; a hollow stem or shank 25; the lifting rod 20 already referred to which is slideable in the shank 25 when operated by handle 24; a pair of collars 26; a pair of slightly divergent springy U-shaped members 27 which at the upper ends are secured in the lower collar brackets 26 and at the lower ends engage in the brackets 21, 22 in the manner of pivots. It could be arranged for the legs 28 of the members 27 to be either sprung to move apart or sprung to move together. The handle 24 could be a trigger. At the outer ends the legs 28 have reduced portios 29 which are pivotally received in the brackets 21, 22, the outer ends 30 being removably inserted into the brackets with a snap action. A reduced portion 31 at the web of each member 27 is removably received with a snap action in jaws 32 on lower collar 26. The rod 20 is formed from a series of plastics elements 40 having a ball end 41 at one end and a corresponding recess 42 at the other so that the ball 41 of one element can be removably inserted with a snap action into the recess 42 of an adjacent element. The coupling part 19 has a ball 41 connected to the lowermost element 40.

Each collar 26 includes a ring 45 engaged with a snap action behind inclined members 46 on a base 47 by sliding over the members 46. The base is in two identical halves each with a lug 48. The halves are coupled to the shank by inserting the lugs 48 respectively in opposed apertures 48a Fig. 11 in the shank 25 which is indicated schematically in Fig. 4, so that the collar and shank are interengaged. The lugs or cross-members 48 define a central aperture 49 which receives the rod 20. The collar 26 is held to the shank 25 by the ring 45 and although the shape and flexibility of the parts permit assembly, the ring 45 cannot be disassembled by reversing the assembly procedure.

The handle 23 is in two parts 50, 51 defining top 52 and sides 53. The sides of the two parts are connected as shown in Fig. 2. Each side 53 at locations 53a has a projection 54, 55 respectively, which projections are shaped to inter-engage, when the sides of the two parts are urged together, so as to resist